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REPORT

ON THE

YORK & CUMBERLAND RAIL ROAD,

ITS

ADVANTAGES AND PROBABLE REVENUE,

WITH STATISTICS OF THE COST AND TRAFFIC OF

NEW YORK & MASSACHUSETTS RAIL ROADS,

BY A. C. MORTON,

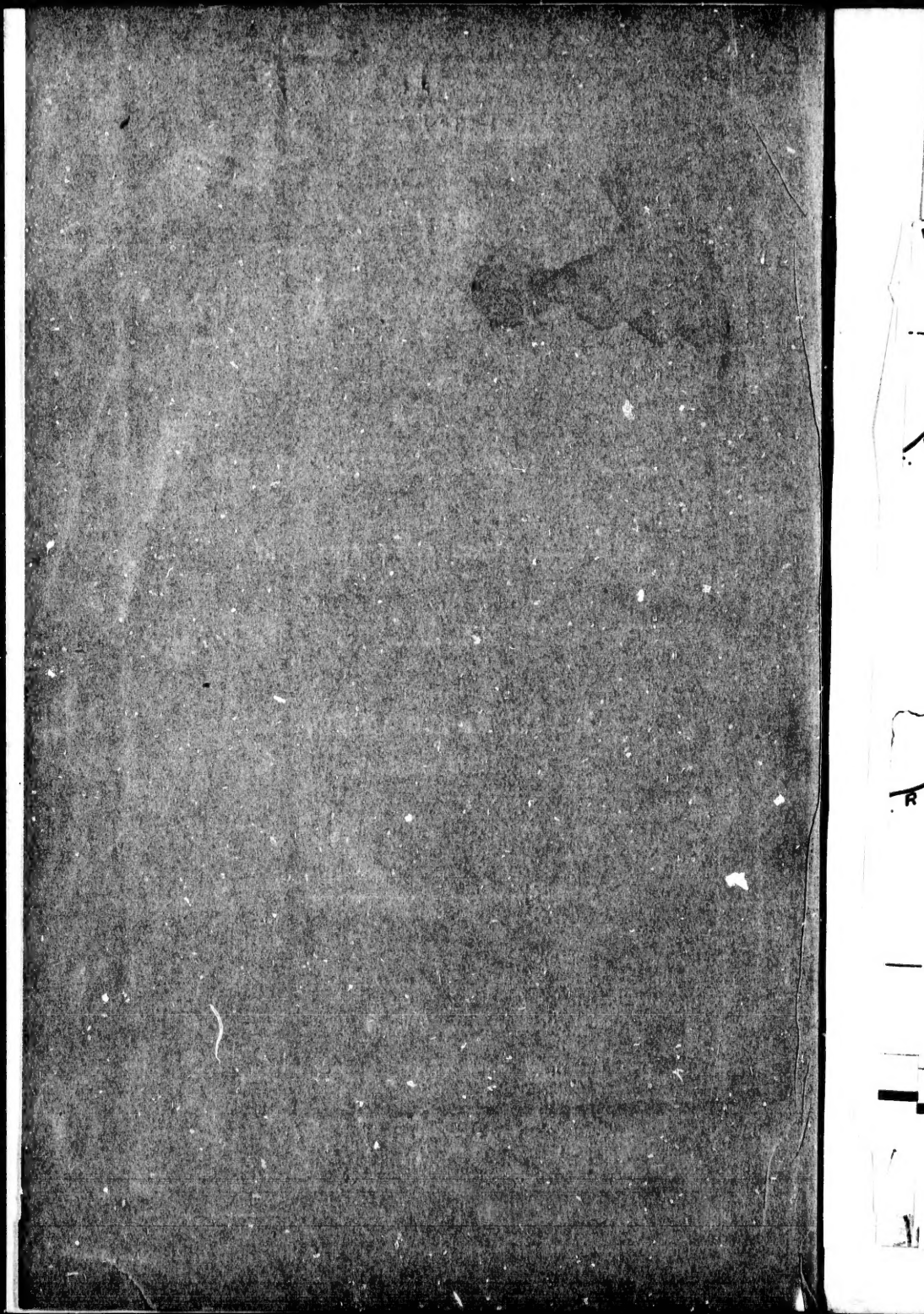
CONSULTING ENGINEER.

PORTLAND:

FOSTER & GERRISH, PRINTERS.

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1849.



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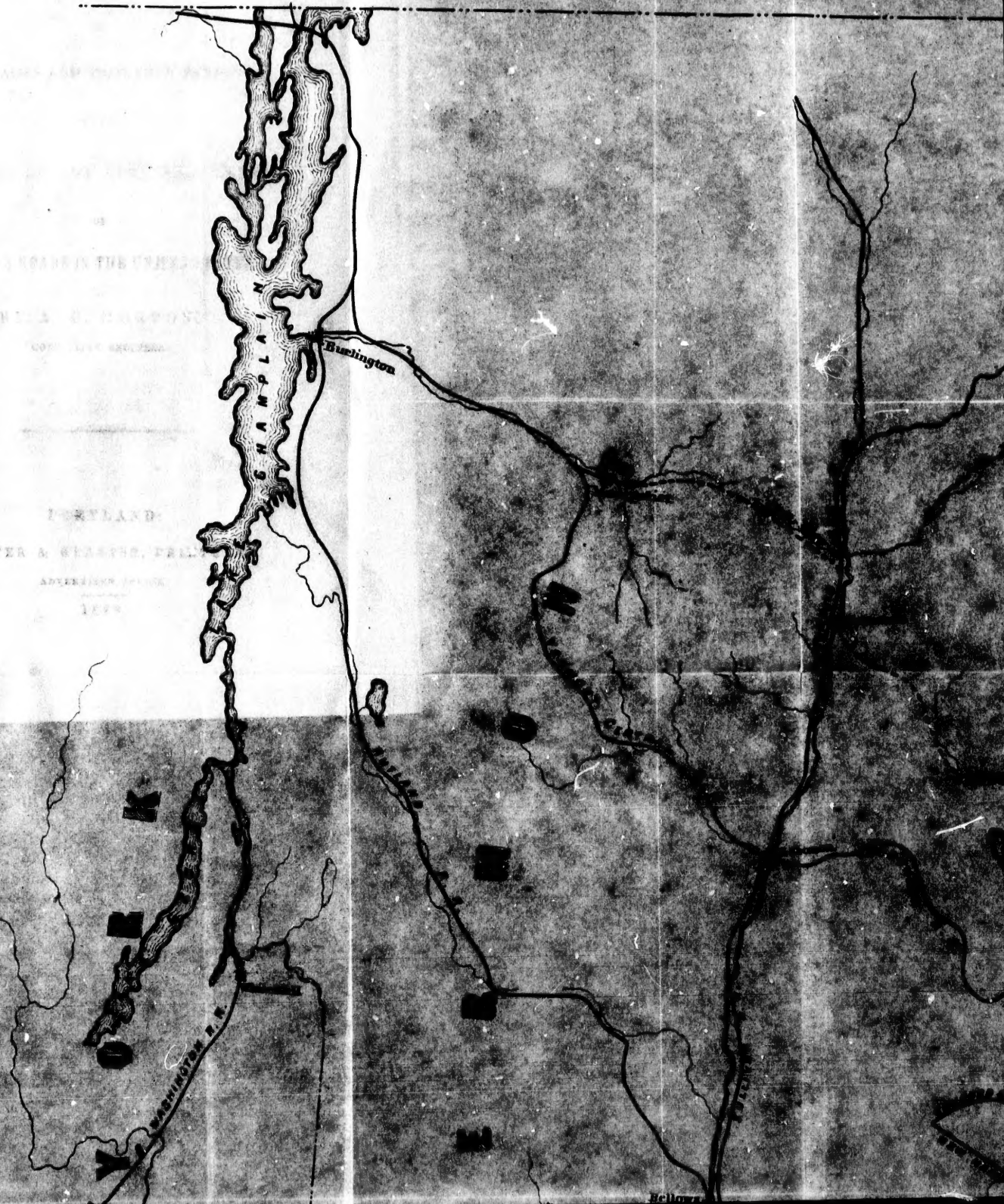
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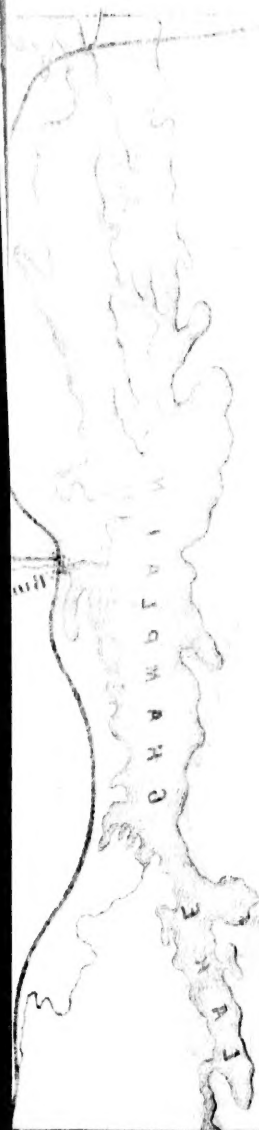
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REPORT.

PORTLAND, August 18th, 1849.

*To the President and Directors of the York
and Cumberland Rail Road Company, }*

GENTLEMEN : —

IN compliance with your request, I have carefully examined the line of your road, the maps, profiles, &c., and have collected such statistical information as the short time allowed me would permit, and now have the honor to submit a Report relative to its general characteristics and the present state of the work, together with some observations on its connexion with other roads, the resources of the country, and the probable amount of trade that may be derived therefrom.

At an early day the route of your road was regarded as the most favorable for forming a railway connexion between Portland and Boston, and a charter was granted by the Legislature of Maine, for this purpose.

From a variety of causes, which it is not necessary to mention, its construction was delayed till after the expiration of the time named in the original Act for its commencement.

On the commencement however, of the great system of railways in this State, the manifest advantages of your line, and the importance of an interior route from Portland to Boston, by which the large trade of York County and a portion of Cumberland should be accommodated, became apparent, and the friends of the enterprise applied for a Charter, which was granted by the Legislature of 1846. This charter is similar to that of the Atlantic and St. Lawrence Rail Road Co., and is regarded as liberal in all its provisions.

The requisite amount of stock having been subscribed for that

purpose, the Company was organized on the 20th of July 1848, and soon thereafter the whole line was placed under contract and the work commenced.

DESCRIPTION OF THE ROUTE.

Commencing at the foot of Preble Street in the City of Portland, your line follows a Southwesterly course passing through the towns of Westbrook, Gorham, Buxton, Hollis, Waterborough, Alfred North Berwick and Berwick to Salmon Falls, a distance of about 49 miles, where it unites with the Boston and Maine Rail Road.

The topographical features of the country along your line, are somewhat irregular, yet the changes in the surface are gradual, and the uplands are of such gentle slopes, as to add much to the beauty of the country and the value of the soil; while they interpose no serious obstacles to a favorable location of the road.

Traversing the country as your road does, in a direction nearly parallel to the coast, the principal water courses which convey the drainage of the country to the sea, have generally a transverse direction to that of your line. This would seem to indicate an unfavorable feature in the topography of the country, precluding in a measure, the location of a road which should possess the essential requisites of favorable alignment, easy grades, and economy in construction. This, however, from the peculiar formation of the country, and the moderate elevation of the grounds dividing these streams, constitutes no material objection to a favorable location of your road. On a portion of the Middle and Western Divisions of the road, the line passes over a succession of sandy plains of moderate width and elevation, skirted by uplands of great fertility, and retaining all the general characteristics of those on other portions of the route.

The soil on that portion of the line between Portland and Gorham is mostly clay, but on attaining the more elevated grounds at that place and descending to the valley of the Saco river, it is of a more favorable character; sand and gravel predominating for a considerable portion of the distance. West of that stream the soil is, on, and in the immediate vicinity of the line with some exceptions, is of a sandy character.

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The line for a short distance in the town of Hollis, and also approaching Mousam river, passes over ground requiring cuttings of considerable magnitude, with indications of clay and rock.

The rock throughout the whole extent of your line, is of primitive formation, and probably more of this material will be encountered at the abovementioned points, than on all other portions of the route. More extended surveys will doubtless partially relieve this part of the line of its asperities.

The amount of earth work to be done on the whole line, when a careful location shall have been made, will be about the same as on other roads of medium cost in New England. This will also be the case with the mechanical work, and although a number of bridges are required, yet they are generally favorably located, of moderate elevation, and there are no indications of unusual difficulties in their construction.

The line crosses the Presumpscot river at Congin, and re-crosses at Saccarappa, the bridge at the former point has one span of 140 feet, and at the latter, two spans of 170 1-2 feet each, making a total length of truss bridging on the Eastern Division of 483 linear feet.

The bridge for crossing the Saco, which properly belongs to the Middle Division of the road, will be about 450 feet in length.

Its axis will vary somewhat from a right angle with the course of the stream, and it will be located at a point, where rock, or other favorable materials will be found for the foundations. The other bridges on the line are of less importance; the largest of which is required for crossing Mousam river, having a span of about 120 feet.

COST OF THE ROAD — AND PRESENT STATE OF THE WORK.

The whole of your road is contracted to be built by Messrs. J. G. MYERS & Co., on terms which are considered favorable to the Company.

The contract includes every item of expense except land, buildings, and machinery, and for the whole road amounts to \$955,500.

To this must be added the cost of the above mentioned items, and an allowance for the general expenses of the company, in all probably amounting to the sum of

	\$ 200,000
Which gives as the total cost of the Road,	<u>\$ 1,155,500.</u>

Averaging \$23,514 per mile, [See appendix note A.]

The contractors subscribe 25 per cent. of the amount of their contract in the Capital Stock of the Company which amounts to	\$ 238,800,
Leaving	<u>\$ 916,700,</u>

as the amount of means required from other Stockholders.

Up to the present time there has been subscribed exclusive of contractors subscription,	\$ 135,000,
Which being deducted leaves	<u>\$ 781,700</u>

as the amount yet to be obtained by subscription, or otherwise to complete, and put in operation the whole Road.

It is believed that on the completion of the Eastern division of the road, which extends from Portland to Saco river, a distance of 17, 81-100 miles, that a handsome revenue will be immediately derived from the local business of the country. As every consideration renders it desirable that this portion of the road should be put in operation at the earliest practicable period, I here add an approximate estimate of its cost based on the estimate of quantities returned by your Engineer, and the contract price of Messrs. J. G. MYERS, & Co.

For grading, bridging, fencing and track	\$ 377,750,
Averaging \$ 21,210, per mile.	

For lands, buildings, general expenses of the company, and machinery to operate this part of the road	\$ 97,000,
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Total cost to Saco river,	\$ 474,750,
Stock subscribed for by contractors,	<u>94,400,</u>
Amount required from other stockholders,	380,350,
Amount already subscribed by "	<u>135,000,</u>
Leaving	<u>\$ 245,350,</u>

to be provided for, to complete the road from Portland to Saco river, and put it in operation.

The following shows the cost of the road from Portland to Gorham.

For grading, bridging, fencing and track,	\$ 251,956,
Averaging \$ 23,525, per mile.	
For lands, buildings, machinery &c.,	\$67,000,
Total cost,	\$ 318,956,
Amount of contractors stock,	63,000,
Amount required from other stockholders,	\$ 255,956,
Amount already subscribed by "	\$ 135,000,
Leaving	\$ 120,956,

as the additional amount to be obtained to complete and put in operation the road from Portland to Gorham.

In reference to the above estimate, it is proper to observe, that the cost of the several divisions has been deduced from quantities estimated by your Engineer on a preliminary survey of the line from Gorham to its Western terminus, and those of the located line from Portland to Gorham. On a final location of the whole line, the proportionate cost of the several divisions may be somewhat varied, although the total cost of the whole road is determined and fixed by the contract. The estimated cost of land has been made with much care, and from the best information in possession of the Directors, but as there is some uncertainty as regards the amount required for damages, &c., it is deemed proper to provide liberally for this item. Relative to the cost of buildings and machinery, there is no difficulty in making a proper estimate. Your station houses are supposed to be constructed of wood, and of moderate dimensions. The amount of machinery embraced in the estimate, is designed to be sufficient to commence operations with, but probably, further additions will soon thereafter be necessary.

The work done on your road, is confined to that portion between Portland and Gorham a distance of 10 3/4 miles,

There have been 77,000 cubic yards of earth, and 7000 cubic yards of rock, removed from cuts and carried into embankments.

One of the abutments of the Congin bridge, and one of the piers of Saccarappa bridge are carried up to the bearing line. The road bridge west of the village of Saccarappa,† is completed. The total amount of bridge masonry laid, is 750 cubic yards, and of culvert masonry 1300 yards. The fencing of this part of the road is in progress, nearly half of it is completed, and the materials for the balance delivered.

The iron for 10 miles is contracted for, and will probably soon be delivered at Portland. The sleepers for the same number of miles of track, are purchased, and a large portion delivered.

The contractors are fully prepared to press forward the work, in the most energetic manner to completion, whenever the pecuniary circumstances of the company shall permit. If means are provided for the vigorous prosecution of the work, the road may be completed to the Saco river in the fall of 1850, and the whole road in the fall of 1851.

CONNECTIONS & PROBABLE TRADE OF YOUR ROAD.

The design of your road as before stated, is to connect with the Boston and Maine road, and thus give an interior communication between Portland and Boston and the intermediate towns, furnishing a cheap and expeditious conveyance to market, for the trade of that section of the country through which it passes, while it will open a new and picturesque route for through travel.

But before further discussing the question of connections, we will proceed to a consideration of the local business of your road.

To arrive at a just conclusion as to the amount of this trade, we must have reference to the character of the country along your line its extent, resources and population.

I have compiled the following tabular statement from the published statistics of the General Government, showing the population and the agricultural products of each of the towns along the route, or in its vicinity, whose trade will pass over your road.

Hiram,	1,242	125,908	3	2	—	1	—	25,004	5,928	5,964	3,694	1,939	169	923	287	1,556
Porter,	1,138	113,834	1	3	—	3	—	16,838	4,136	5,001	2,574	1,100	97	741	216	1,200
Total Amount,	41,252	5,882,014	146	70	8	5	117	15,424	4,664,731	125,223	173,098	36,663	56,597	4,869	32,057	10,215

<i>Names of Towns.</i>	<i>Popu- lation in 1840.</i>	<i>Valuation in 1844.</i>	<i>No. of stores.</i>	<i>No. grist mills.</i>	<i>No. wool mills.</i>	<i>No. cor. fact's.</i>	<i>No. saw mills.</i>	<i>No. full- ing mills.</i>	<i>No. Tanneries.</i>	<i>No. Furnaces.</i>	<i>Bushels of Pot'ts.</i>	<i>Bushels of Grain.</i>	<i>Bushels of Corn.</i>	<i>Pounds of Wool.</i>	<i>Tons of Hay.</i>	<i>No. of hor's.</i>	<i>No. of Cattle.</i>	<i>No. of Swine.</i>	<i>No. of Sheep.</i>
Westbrook,	4,116	656,403	24	10	—	1	13	2	8	2	68,329	5,245	3,539	3,269	6,107	407	1,329	777	2,253
Gorham,	3,002	571,945	12	3	—	1	4	2	1	—	48,372	11,092	8,627	4,441	5,010	371	2,013	922	2,612
Standish,	2,198	326,299	8	1	—	—	6	—	—	—	36,900	6,992	9,421	2,992	2,525	242	1,312	392	1,937
Buxton,	2,687	364,317	12	6	1	1	13	2	6	—	44,933	11,169	9,825	5,516	5,218	297	2,219	1,037	3,438
Limington,	2,111	324,344	7	1	—	—	7	3	—	—	39,029	8,984	13,800	5,856	3,255	313	1,619	502	2,948
Limerick,	1,509	229,30	9	3	—	—	4	—	—	—	23,953	4,401	9,138	4,173	2,528	192	1,367	322	1,520
Holla,	2,363	289,087	11	7	—	—	17	—	1	1	44,931	7,491	11,832	4,693	3,461	272	2,008	856	3,243
Waterboro,	1,944	209,155	2	3	—	—	3	1	1	—	30,837	3,918	8,298	4,006	1,954	211	1,719	410	1,926
Alfred,	1,408	208,855	7	3	1	—	3	—	2	—	18,422	3,019	5,628	2,950	1,675	221	987	263	1,127
Lyman,	1,476	194,313	3	1	—	—	5	—	—	—	19,549	4,325	6,276	2,950	1,696	154	1,221	277	1,420
Cornish,	1,263	160,564	5	—	—	—	1	—	2	—	26,622	4,597	7,021	4,268	1,937	172	1,040	342	1,611
Newfield,	1,354	172,206	2	4	—	—	2	—	1	1	24,046	4,110	7,195	4,669	1,910	176	1,494	293	1,479
Parsonsfield,	2,442	369,312	7	4	—	—	4	1	4	—	51,863	12,263	17,932	8,878	6,140	442	3,635	617	3,242
Shapleigh,	1,510	185,846	4	3	1	—	8	1	2	—	23,687	2,596	5,499	2,812	1,752	150	1,282	327	1,278
Acton,	1,408	198,762	3	4	—	—	5	—	2	—	32,673	5,192	6,729	4,602	1,978	160	1,507	291	1,772
Berwick,	1,698	198,702	5	1	—	—	5	—	4	—	27,387	4,131	6,832	3,065	2,180	137	1,385	678	2,306
Sanford,	2,233	320,618	5	2	2	1	2	1	1	—	29,117	6,492	10,592	3,860	2,047	247	1,750	731	2,799
South Berwick,	2,314	366,063	16	5	3	1	5	1	5	—	32,548	2,726	5,815	3,036	1,837	152	1,220	354	1,332
Baldwin,	1,134	172,697	—	4	—	—	4	—	1	—	17,753	4,109	5,627	2,890	1,480	138	789	220	1,216
Sebago,	707	74,080	—	2	—	—	2	—	—	—	11,941	2,407	2,456	1,669	868	97	495	201	612
Hiram,	1,242	125,908	3	2	—	—	1	1	—	—	25,004	5,828	5,964	3,594	1,939	169	923	287	1,356
Porter,	1,133	113,834	1	3	—	—	3	—	1	—	16,836	4,136	5,001	2,574	1,100	97	741	216	1,200
Total Amount,	41,252	5,832,014	146	70	8	5	117	15	42	4	654,731	125,223	173,095	36,663	56,597	4,863	32,057	10,215	42,997

Population of Portland, 20,000, and Somersworth of the Western Townships of the Road, 8600, making a grand total of 65,252 inhabitants.

The preceding statistics excepting the valuation, were collected in 1840, and are probably much below the actual products at the present time.

50 The valuation was made out in 1844, for the purpose of assessing the State tax, and this, it is well known, is at least ~~one hundred~~ per cent below the present actual value of personal and real estate in these towns. I have also collected from reliable sources in several of these towns, valuable statistical information relative to the business and probable amount of tonnage from each. The towns whose trade will be tributary to your road, are generally in a high state of cultivation, having a thrifty and enterprising population.

The streams along the line furnish an almost inexhaustible amount of water power, which is already improved to some extent, and will come into immediate use, as soon as the facilities of reaching market are offered by the completion of your railway.

Taking up the question of its local advantages for business I would remark that soon after reaching the flourishing village of Saccarappa, your road will have a very considerable income.

Here the Presumpscot river has a fall of 32 feet, and the water power caused thereby is adequate to operate 100,000 spindles, and at Congin, one mile below Saccarappa, and within a slight distance of the line of your road, there is a fall of 17 feet. Within 6 miles of the City of Portland, you bring into immediate use an extent of water power as great as that now in use at Saco and Biddeford.

It appears a matter of surprise that so great and valuable a water power, so convenient to tide water as this, should remain till this time comparatively unused. There is no other Atlantic City in the United States, (unless perhaps we except Baltimore) that boasts of such unrivalled advantages for manufacturing industry in its immediate vicinity, as the City of Portland.

The Presumpscot river is discharged from Sebago Lake 17 miles from Portland. The latter is elevated 260 feet above tide water, and covers a surface of 100 square miles. Between this Lake and the sea, there are no less than 15 distinct falls, varying from 10 to 32 feet each, having an aggregate of 228 feet. All of these falls are capable of being made valuable for manufacturing purposes,

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and it is not asserting too much, to say that a continuous manufacturing village will eventually extend from where your railway reaches the Presumpscot, to the Outlet of Sebago Lake. There is an even and uniform flow of water in the Presumpscot, from the capacity of its great natural reservoir, Lake Sebago, that insures against the damages of sudden floods, or the evils arising from severe drought in the summer. In this respect, it has capacity and advantages beyond most streams in New England, at present in use, and from the proximity of its water-falls, to a large seaport, may claim to possess advantages no where surpassed.

The only surprise is, considering the density of the population upon the line, the wealth of the inhabitants, and its favorable location for business, that it has not before been brought into greater notice by means of a railway.

To see a Lowell, or a Manchester, within six miles of Portland, at an early day, it needs only the prevalence of the same spirit of enterprise, and the same forecast that has given to the other manufacturing towns of New England their importance.

At Saccarappa there are at present in operation 3 Cotton Mills, having 8700 spindles and employing 350 persons. There is also 1 power loom Harness Factory — 1 Flouring Mill — 2 Shingle and Lath Mills — 2 Machine Shops — 1 Lock Shop — 1 Iron Foundry — 4 Saw Mills, and various other kinds of machinery. There are also 18 Stores.

Within the limits of the free grammar school district which extends one mile in each direction from the bridge, there are 2000 inhabitants. It is estimated by intelligent timber merchants that the Saw Mills manufacture 8,000,000, of feet of lumber annually. There are nine lines of Stages running through this place, and an Omnibus running twice daily to Portland.

At Congin, there are 2 Paper Mills — 1 Veneering Mill, and 1 Store.

The present amount of freight from these places amounts to over 15,000 tons annually.

Above Saccarappa there are in use several valuable water powers operating 20 Saws — 1 Cotton Factory and other machinery.

The next important point on the line is Gorham, a rich agricultural town, having a population of over 3000 inhabitants, and containing 12 Stores — 1 Academy, and 1 female Seminary.

From this place to Sebago Lake, the distance is about seven miles, and the construction of a branch from your road to this point, will connect with a Steamboat navigation of 30 miles, in extent, thereby securing the travel of this favorite route to the White Mountains, and the trade of the surrounding towns. There are at the present time, 6 Stage Coaches passing daily through this place.

Your road reaches the Saco river in the town of Buxton, which with the town of Hollis on the opposite side of the river, will furnish for the road a large amount of trade. Bar Mills are situated about a half a mile below the road, where the river has a fall of 20 feet.

At Salmon Falls, about 1 mile below Bar Mills, there is a fall of 30 feet at one point, and an additional fall in a distance of half a mile of probably 30 or 40 feet, the former being improved to some extent. When it is known that the amount of water flowing in the Saco river at these places is very nearly equal to the same stream at Saco, where with a fall of 38 feet it now drives about 100,000 spindles and a large amount of other machinery, some idea may be formed of the value of the water power at the places above mentioned.

Within the limits of these two towns, there are 23 Stores, 30 Saw Mills, 5 Grist Mills, 1 Cotton and 1 Woolen Factory, 4 Lath and 2 Planing Mills, and a considerable amount of other machinery. The amount of lumber annually manufactured exceeds 20 millions of feet, and there is an extensive business carried on in the manufacture of Shingles, Pails, Tubs, Sugar Boxes, Heading, &c.

The value of the articles manufactured being mostly products of the forests, exceeds \$ 400,000 annually. It will also be observed by reference to the preceeding tabular statement, that the agricultural products and the number of neat cattle and other animals in these towns are large, and compare favorably with other towns in the County of York. In the town of Hollis there are extensive quarries of granite of great beauty and value for building purposes,

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and large quantities will undoubtedly be transported to market when a cheap conveyance is furnished. It is estimated by intelligent business men, that the total amount of freight which will be furnished by these two towns, with the present trade, will exceed 16,000 tons annually.

The Saco river has its principal source in the Notch of the White Mountains, and flowing in a Southeasterly direction, its volume is increased in the distance of a few miles by its mountain tributaries to that of a large and powerful stream. In its whole length it receives the drainage of a section of country of 650 square miles in extent. After it emerges from the highland district it runs for a distance of 60 miles through a rich agricultural country opening a beautiful and fertile valley through which a large trade flows.

The aggregate amount of fall available for manufacturing purposes at various places, within a distance of 21 miles above the point where your line crosses it, exceeds 200 feet.

It furnishes a highly favorable route for a branch to your road, the construction of which would further develop the capabilities of the country by bringing into use the whole of its valuable water power, and building up manufacturing towns along its banks. The day is probably not far distant when this branch will be extended up the valley of the Saco in a direct line towards the White Mountains, as far as Conway, New Hampshire, where it will meet a line already surveyed from Meredith to the same point, thus connecting your road by another attractive route with the roads of New Hampshire and Vermont.

The towns bordering the Saco and Ossipee rivers, which are tributary to your road, possess great natural resources and at the present time furnish a large and valuable trade. But when your road shall have been opened, it will like all similar works, materially increase the value of lands and the amount of trade, for the reason that it will give to the agriculturalists of this comparatively secluded district, nearly the same facilities of reaching the market, as those more favored towns in the immediate vicinity. It will call into existence new branches of trade, by furnishing a cheap and rapid means of transportation for heavy and bulky articles which at

present are comparatively shut out of market from the great expense of conveyance. The effect of railroads is to equalize trade, and the value of commodities in different sections of the country; to reduce the cost of articles drawn from the cities of the seaboard by remote towns and increase the value of the products of the interior by lessening the cost of their delivery in market.

After crossing the Saco river, your road will pass through an agricultural country for the whole distance. On reaching Alfred, the Shire town of York county, you are in the midst of an exceedingly fertile and populous district. It is from this point that I would propose a Branch line, to which allusion will hereafter be made; extending Westerly to Winnipiseogee Lake.

The superiority of Portland, as a market, over any town East of Boston, for York county and the whole region to the North of your line both in Maine and New Hampshire, will with this branch line, secure to your road nearly the whole of this valuable trade. In Berwick, at Salmon Falls, the point where your road unites with the Boston and Maine road, and in Somersworth on the opposite side of the river, are several Cotton Mills, having at present 37,000 spindles, and a Capital of over one million of dollars. At Great Falls, a short distance above, there are extensive manufacturing establishments, where there are 60,000 spindles in operation.

The large population and extensive manufacturing interests at, and in the immediate vicinity of the Western terminus of your road will naturally add much to the intercourse with the interior, and doubtless contribute largely to your business.

It is unnecessary to pursue the subject of the local trade of your line, further than briefly to allude to some of the leading articles which will constitute the bulk of its freight business.

Among the various advantages which indicate the great superiority of your road, the principal consideration is the fact, that for nearly its whole extent, the country is thickly populated, the soil fertile and in a high state of cultivation.

The surplus productions of agriculturalists must therefore compose a very considerable portion of the tonnage of the road. Large quantities of pressed hay, grain, beef, potatoes, cattle, sheep, &c., will be forwarded to market by this conveyance.

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Cattle in great numbers are annually driven from various parts of this State, through York county to Brighton market, which together with those forwarded from that county, will of itself constitute a most important branch of business.

Experience both in this country and Europe shows, that the cost of transporting cattle on railways, is small in comparison with the loss of weight, and the time and expenses when driven. Dealers are enabled to take advantage of a favorable state of the market, and deliver their cattle at a given point, arriving with the greatest certainty, and in a saleable and fresh condition.

Immense numbers of cattle are now annually transported to various Atlantic cities of the United States, by railways, and this trade must continue to increase as new avenues are opened and more remote sections of country furnished with these facilities. It only requires the proper accommodations and a reasonable tariff of charges, to insure to your road a large revenue from this source.

Another important article of trade on your road, will be ship Timber, large quantities of which are sent to market annually. It is only the great expense of transportation by teams, that prevents a more extensive trade in this article at the present time. The rapid increase of ship building in the district of Portland, shows the importance of this branch of business, and the great demand for ship timber.

The following table exhibits the tonnage of Shipping owned and built in the State of Maine, and also the same for the District of Portland, from 1844 to 1848.

Year.	PORTLAND DISTRICT.				ALL OTHER DISTRICTS IN STATE.		
	Ships owned, Tonnage.	Per cent. increase from year to year.	Ships built. Tonnage.	Pr. ct. increase from year to year.	Ships owned. Tonnage.	pr. ct increase from year to year.	Ships built Tonnage.
1844	57,347		3,995		250,084		16,205
1845	64,191	12	7,976	100	255,868	2½	23,129
1846	66,236	3	9,669	25	291,887	14	39,858
1847	74,046	12			310,312	6½	54,511
1848	82,361	11	14,413	46	369,967	19	75,561
Per cent increase Ships owned 45 " " " " built 361, in four years.					Per cent inc. of Ships owned 48 Per " " " Built, 366, in four years.		

The preceeding table shows that the Tonnage owned in Portland, is 18 1-4 per cent — and the Tonnage built is 16 per cent. of all, owned and built in the State.

The transportation of Lumber on your road will be a still more important branch of trade, than that of Ship Timber.

It is estimated by dealers in this article, that the total amount manufactured on the Presumpscot river, is from 8 to 9 millions, and the Saco, 30 to 40 millions of feet.

An immense amount of lumber must pass over your road in each direction from these rivers. To these great productions of the forests must be added, fire wood, headings, shooks, hoop-poles, wooden ware, &c., &c., in large quantities.

Fruit composes one of the articles of trade, of several of the towns, and it is estimated that 5000 barrels of apples are annually sent to market from one town only. The amount of merchandise transported by merchants in the several towns tributary to your road, will not at the present time fall short of 7000 tons annually.

Manufactured goods, together with the raw material will furnish freight in both directions, which now amounts to several thousand tons annually.

With this view of the character, resources, and productions of the country to which you look for local trade, I am decidedly of the opinion that the advantages of your road in this respect, are equal to, if not superior to most of the roads of New England.

Relative to the revenue that you may derive from the transportation of passengers, I will observe that the position and connexions of your road, the character and extent of the population along the route, are such as to give the strongest assurance of a large income from this source.

In addition to the great number of Stage Coaches and private conveyances which arrive at and leave Portland in this direction daily, there are numerous cross lines at Buxton, Alfred and other points which will concentrate the travel from a large section of the country to your road.

On its completion, many of the lines will change their relations, new routes will be opened, extending further into the interior, and

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running to particular stations on your line. By this means a large population will be brought to the support of the road, and the number of passengers greatly increased.

The total population of the towns along the route of your road, it will be seen by referring to the statistical table, is as per census of 1840 — 41,000. To this should be added the population of the towns at and in the immediate vicinity of each terminus of the road, which probably is not less than 25,000, making a total population of 66,000 inhabitants, on and near your road, who will contribute to its business.

The following tabular statement shows the comparative density of population of the settled portions of different Counties of this State at the periods named.]

COUNTIES.	1800.		1820.		1840.	
	Square Miles.	Density.	Square Miles.	Density.	Square Miles.	Density.
York, -	817	42	817	56	817	66
*Cumberland,	955	33	988	50	988	54
Lincoln,	950	29	950	49	950	66
Kennebec,	985	18	1047	38	1047	53
Waldo,	440	15	812	27	812	51
Penobscot,	390	8	1143	12	1649	21
Oxford,	623	16	1228	22	1540	24

Average density of population of country tributary to the road including Portland, is 91 per square mile

From the above statement, it will be perceived that York County from the year 1800 to the present time, has maintained a great superiority in the density of its population; no other county reaching it, up to 1848, [leaving the population of Portland out of Cumberland] except Lincoln. Again if we include the population of Portland in the portion of Cumberland, Oxford and York Counties showed on the map as being tributary to your road we find that the average density of population is greatly superior to any other equal portion of the State.

Comparing the population of this district of Maine with that of the State of Massachusetts, we find that the average density of the former 91, and that of the latter is 9½ per square mile.

* Not including Portland.

It appears from the reports of the various rail road corporations in the State of Massachusetts for 1848, that the total number of passengers transported by the main lines only, running out of Boston was over five times the population of the whole State, and that the freight transported by these and other lines within the limits of the State was equal to about 13-4 tons to each inhabitant.

There is no very great difference in the character of the inhabitants generally of Maine and Massachusetts, and making all due allowance for perhaps a less developement of the resources, and less intercourse in the former, it would appear safe to assume that the number of passengers transported on your road will amount to nearly twice the number of the inhabitants tributary to it, or equal to an aggregate of 120,000 through and way passengers annually. From my knowledge of the resources of the country which will contribute to the trade of your road, and the result of rail road enterprises in Maine as well as in Massachusetts, I am led to believe that it will do a large freighting business, and that the amount of this trade will soon reach 60,000 tons per annum.

Applying about the present rates of fare between Portland and Boston, and a low rate for transportation of freight, and we have the following results.

PROBABLE REVENUE OF THE ROAD.

45,000 Through passengers at 85 cts.	-	-	\$ 38,250,
75,000 Way do " 75 "	-	-	56,000,
60,000 Tons Freight carried over half the length			
of the road, at \$ 1,25,	-	-	75,000,
Mails, &c.	-	-	5,000,
Total receipts,	-	-	\$ 174,250,
Deduct 50 per cent, for expenses,	-	-	\$ 77,125.
Net receipts,	-	-	\$ 97,125,

Which is 7 1-2 per cent on \$ 1,155,500, the cost of the Road.

Relative to the cost of operating the road, I may observe, that the expenses of operating the Portland, Saco and Portsmouth rail

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road for several years past has been, only about 36 per cent. of its receipts, which speaks well of the management of that road.

The expenses of the Boston and Maine road in 1847, were 43 per cent. of its receipts; this road however, carried a much larger amount of freight than the road abovementioned.

Should your road be operated with equal economy at least to that of the Boston and Maine road, the net income with the above amount of trade will be \$ 99,323, or over 8 1-2 per cent on the cost.

In submitting the above estimate, I have had reference not only to the present trade, but to the increase which immediately follows the opening of a new line of railway. Illustrative of this subject, I annex the following tabular statement of several railways in Massachusetts showing the estimated number of passengers before each road was built, and the number transported at different periods after they were put in operation.

<i>Name of Road.</i>	<i>Estimated No. passengers before opened.</i>	<i>No. passengers soon after opened.</i>	<i>No. passengers carried in 1848.</i>
Boston and Worcester,	23,500	262,830†	807,143
Boston and Lowell,	37,400	400,886*	525,764
Fitchburg,	71,790	327,034†	745,825
Eastern,	121,700	488,026†	1,021,169
Boston and Maine,		460,426*	1,057,569

A very great increase of business in every portion of Massachusetts has followed the introduction of railways, and notwithstanding many of them are competing lines yet the revenue of all has continued to increase rapidly (Note B.)

The new lines have developed the resources and increased the business of the country in a greater ratio than they have provided means for its accommodation.

The amount of travel between Portland and Boston at the present time is very large, yet is small compared with what it will be, when the numerous lines now in progress shall have been completed.—

*For the year 1846.

†For the year 1848.

‡For the first whole year after the road was completed.

Your road will not only add materially to this amount of business, but it will be one of the great thoroughfares over which the rapidly increasing travel of the east and north will pass. It is a fact worthy of notice, that the two main lines running easterly from Boston, transported during the last year 2,078,738 passengers or 39 per cent of the whole number carried by all the lines running out of Boston.

When the great north-western line, reaching to Montreal, and the other trunk lines penetrating the interior of the State of Maine in several directions and extending on towards the Lower Provinces are completed, there will be a vast accession to the trade and travel in the direction of Boston.

It is necessary to anticipate but a few years when these extended lines will be in successful operation all converging to Portland as the chief commercial city of the State, and the important relations which your road sustains in connecting the great railway system of Massachusetts with that of Maine and Canada, will at once be seen. It perfects and forms part of a great line connecting two important cities, to each of which, railways converge from almost every direction, concentrating an immense amount of travel.

At the eastern terminus of this line, the benefits of a more recent system of railways are but just beginning to be felt, but as this system is fast developing itself, a rich and an abundant harvest will soon be provided for the railways connecting Maine and Massachusetts.

Allusion has been made in another part of this report, to a proposed branch line to your road, which in its influence, upon your trade and the value of your stock, is scarcely second to your advantages at either terminus. This is a connection with the roads of New Hampshire and Vermont, running westerly to Lake Champlain and northwesterly to the Canada line.

The most natural point of divergence from your line to form this connection appears to be in the town of Alfred, a distance of about 33 miles from Portland and running as nearly in a westerly direction as the ground will permit, to the south end of Winnepiscogee

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Lake in the town of Alton, thence along its southwestern shore to Gilford, where it would bear more westerly and probably intersect the Boston, Concord & Montreal Railroad near Meredith.

From this point, looking to a still more westerly connection, the above mentioned road would probably be followed for a number of miles to a point in the town of Northfield, where a branch could be constructed, connecting that with the Northern road at a point in the vicinity of the village of Franklin. This would perfect a direct westerly line of railways from Portland to Burlington on Lake Champlain.

This must be regarded as an important connection and one which not only brings Lake Champlain nearer to Portland than Boston, but also the upper Connecticut and Passumpsic valleys, through the Boston, Concord & Montreal road to Haverhill.

The project of a road from Montpelier, Vermont, to the Connecticut at Wells river village or Bradford, has been much discussed. Should this be constructed, uniting with the Boston, Concord & Montreal road at or in the vicinity of Haverhill, by constructing the other link from the last mentioned road at Winnepiseogee Lake to your road in Alfred, another and more direct line of railway communication from Portland to Lake Champlain at Burlington, would be completed.

This materially reduces the distance below that by the way of the Northern and Central road to Montpelier as above described, and as it strikes the Connecticut valley at a point from 30 to 40 miles above any other road leading from Lake Champlain to the seaboard, it enjoys unusual advantages. It not only presents a much shorter route for the Western trade, but its manifest tendency is to intercept the trade of the upper Connecticut and Passumpsic valleys, turning it into a new and more direct channel to an Atlantic market. Your road would then constitute the last and most important link of this great chain over which the accumulated trade of several of the richest districts of New England could reach the seaboard. With this view of the question, it appears a proper subject of investigation as showing the favorable position and advanta-

ges of your line for the western trade, and involving considerations of much interest to every friend and stockholder of the road.

For a more perfect illustration of the advantages of this route, its relative position to the country it is designed to accomodate, and to other channels of trade, I refer to the map accompanying this report.

The beneficial effects of rail roads on the value of lands, is a subject with which all are familiar and to which I need hardly here allude. These benefits are not confined to the immediate vicinity of rail roads but extend to large districts of country, considerably remote from the line, where the increased value thus given to lands often far exceeds the cost of the roads.

In the State of Massachusetts, the immense increase in the value of real estate, has resulted mainly from the introduction of rail roads, and equally favorable results have followed their construction in other parts of the country. The increased valuation of real and personal estate in the city of Boston only, from 1840 to 1848, most of which may be ascribed to the effects of her rail ways, was about sixty millions of dollars, or more than the cost of all the roads in the State.

To the city of Portland, your road will bring advantages far beyond what most of its friends can estimate at this time, not only securing the rich trade of the western part of the State, now in danger of being drawn from us by competing lines, but opening to her a new and favorable route to other States, competing successfully with the most fortunate lines to Boston from the Connecticut valley and Lake Champlain. From her real estate owners and business men, and in fact, from all classes of her citizens, your road should receive a hearty and a liberal support.

Railways have been the great agency that has given to New England her present commercial and political importance. Boston and the State of Massachusetts have given examples in this respect which are worthy of imitation. But we need not go beyond the limits of our own State for proof of prosperity clearly attributable to the influence of rail roads. The most casual observer cannot

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fail to be impressed with the evidences of prosperity at Portland and along the line of the new roads entered upon in Maine within the last four years. The results already reached are but the promises of greater ones yet to come, and hold out to the citizens of Maine the most flattering prospect for the future, and encourage them to perseverance in the noble work of perfecting a great system of railways within her own borders.

Maine has been regarded as behind her sister States in enterprise and capital, mainly from the fact that she has done less for rail roads than most of the States similarly situated. Various causes have conspired to hold in check the spirit of railway enterprise, elsewhere so successful, and among others the want of sympathy between the people of the State and the parties constructing them, has been one chief cause. At the present time however, a different feeling prevails, but it will take years to achieve in Maine what has been done elsewhere as will be seen by the following table showing the comparative extent, population and miles of rail roads finished and in progress in the six New England States.

<i>Name of States.</i>	<i>Square miles.</i>	<i>Population 1840.</i>	<i>R.R. built miles.</i>	<i>R. R. in prog. mls</i>
Maine,	32,628	501,793	159	79
N. Hampshire,	9,491	284,574	296	190
Vermont,	10,212	291,948	142	199
Massachusetts,	7,500	787,699	928	25
Connecticut,	4,764	309,978	336	100
Rhode Island,	1,340	108,830	64	

If however, Maine is behind others in the amount invested in railways she is not wanting in enterprise or public spirit.

With vast commercial and manufacturing advantages she only requires the extension of railways into the remote portions of the interior to become among the first in commercial and political importance. Already she is in advance of every State in the Union in the comparative extent of her interests in shipping and ship building. [Note C.]

With this examination of the merits and advantages of your road

the beneficial effects it will have on the towns and country in its vicinity and the State at large, I can state with great confidence, that I believe it will be among the best paying roads of New England, that its trade will continue to increase till all your great lines are completed and your connections with Canada and the Lower Provinces are perfected.

I have the honor to be

Gentlemen,

Your obedient, servant,

A. C. MORTON,

Consulting Engineer.

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NOTE A.

COSTS OF VARIOUS RAIL ROADS IN MASSACHUSETTS.

<i>Name of Road.</i>	<i>Miles Double Track.</i>	<i>Total length & branches.</i>	<i>Total cost.</i>	<i>Cost per mile.</i>
Berkshire,		21,13	600,000	28,395
Boston and Lowell,	25½	27,62	2,013,687	72,907
Boston and Maine,	13½	79,34	3,571,832	44,019
Boston and Providence,	15½	47,60	3,031,106	63,678
Boston and Worcester,	44½	66,62	4,650,392	69,804
Cape Cod Branch,		27,80	587,116	21,119
Cheshire,		53,64	2,584,143	48,177
Connecticut River,		52,35	1,588,184	30,337
Eastern,	16	58,07	3,095,393	53,304
Fall River,		42,24	1,145,982	27,130
Fitchburgh,	17	56,12	2,945,630	52,488
Lowell & Lawrence,		12,35	283,248	22,935
Old Colony,	11½	45,00	2,080,903	46,246
Providence & Worcester,	5	43,50	1,873,895	43,078
Western,	51	117,80	7,975,452	67,703

Average cost per mile of the above roads, - - - - 50,621
 " " " " " those without double track, 32,403

NOTE B.

STATEMENT SHOWING THE INCREASE OF RECEIPTS
ON VARIOUS ROADS.

		<i>Passengers.</i>	<i>Freight.</i>
Western Railroad,	Income 1842,	\$266,447	\$246,351
"	" 1848,	551,038	781,030
	Increase in six years,	284,591	634,600
Total, 819,290, or 160 per cent.			
Beston and Worcester,	Income 1840,	170,855	96,691
"	" 1848,	332,885	383,398
	Increase in eight years,	162,030	286,707
Total, 448,737, or 168 per cent.			
Boston and Providence,	Income 1840,	134,651	67,950
"	" 1848,	231,262	123,111
	Increase in eight years,	96,611	55,161
Total, 151,772, or 75 per cent.			
Eastern Railroad	Income 1841,	257,734	41,839
"	" 1848,	378,068	101,088
	Increase in seven years,	120,334	59,249
Total, 179,583, or 60 per cent.			
Nashua and Lowell,	Income 1844,	47,165	47,421
"	" 1848,	72,858	97,418
	Increase in four years,	25,703	48,997
Total, 74,700, or 79 per cent.			
Boston and Lowell,	Income 1840,	127,005	104,569
"	" 1848,	201,218	260,129
	Increase in eight years,	74,213	155,560
Total, 229,773, or 99 per cent.			

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Note B continued.

Boston and Maine,	Income 1846,	223,191	125,943
"	" 1848,	332,161	179,466

Increase in two years, 108,970 53,523

Total, 162,493, or 47 per cent.

Fitchburg,	Income 1846,	128,738	157,906
"	" 1848,	220,198	266,065

Increase in two years, 91,460 108,159

Total, 199,619, or 69 per cent.

Baltimore and Ohio,	Income, 1847,	403,812	647,509
"	" 1848,	445,254	717,212

Increase in one year, 41,442 69,703

Total, 111,145, or 10 per cent.

TABLE SHOWING THE INCREASE OF PASSENGERS
ON VARIOUS ROADS.

<i>Names of Roads.</i>	<i>Year</i>	<i>Number of Pas- sengers.</i>	<i>Year</i>	<i>Number of Passen- gers.</i>	<i>No of yrs</i>	<i>Increase.</i>	<i>Per cent.</i>
Boston and Lowell,	1846	400,886	1848	535,764	2	124,918	31
Fitchburg,	1845	196,669		745,825	3	549,156	280
Western,	1842	190,436		405,614	6	215,178	113
Boston & Worcester,	1843	262,830		807,144	5	544,313	207
Old Colony,	1846	213,144		552,203	2	339,059	159
Eastern,	1842	431,000		1,021,169	6	590,160	119
Boston & Maine,	1846	460,426		1,057,569	3	597,143	129
Boston & Providence,		476,525		569,127	2	92,612	119
Utica & Schenectady,	1843	147,868		270,413	5	122,545	83
Utica and Syracuse,		114,843		216,807	5	101,964	89
Auburn & Syracuse,		83,316		154,215	5	71,899	86
Auburn & Rochestr,		105,190		209,259	5	104,069	99
Tonawanda,		67,604		148,443	5	80,839	120
Attica and Buffalo,		68,896		146,235	5	77,339	112
Baltimore and Ohio,		149,533		270,616	5	121,083	80

NOTE C.

**TONNAGE OF SHIPS BUILT IN THE PRINCIPAL SHIP
BUILDING STATES.**

<i>Year.</i>	<i>Penn.</i>	<i>N. York</i>	<i>Mass.</i>	<i>Maine.</i>	<i>Maine exceeds Penn.</i>	<i>Maine exceeds N York</i>	<i>Maine exceeds Mass.</i>
1845	15,819	29,342	25,961	31,105	15,286	1,763	5,144
1846	15,784	33,753	24,321	49,747	33,963	16,494	25,426
1847	24,126	50,994	27,769	68,548	39,422	12,554	35,779
1848	29,638	68,434	39,366	89,974	60,336	21,540	50,608
Total 4 yrs	85,367	182,023	117,417	234,374	149,007	52,351	116,957

Total amount built by these four States in four years, 619,181.

Of which Maine has built 234,374—equal to 38 per cent. of the whole.

**TONNAGE OF SHIPPING OWNED IN THE PRINCIPAL
COMMERCIAL STATES FROM 1839 TO 1848,
INCLUSIVE.**

<i>Name of State.</i>	<i>1839</i>	<i>1844</i>	<i>1845</i>	<i>1846</i>	<i>1847</i>	<i>1848</i>
New York,	468,598	588,576	625,875	655,695	747,024	845,788
Massachusetts,	526,364	501,207	524,994	541,520	577,810	641,288
Maine,	282,285	307,431	320,059	358,123	384,353	456,665
Louisiana,	109,076	161,769	170,525	181,258	213,588	227,009
Pennsylvania,	112,359	128,841	147,802	148,069	182,997	211,552

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